- exposing the sample to the action of a gradient that, at least partially, denatures the amplified nucleic acid in the sample and that effects variation in the spectroscopically measurable parameter of the probe, creating a measurable signal;

- detecting the measurable signal; and

- optionally carrying out the amplification reaction and the qualitative and quantitative analysis without opening the sealed reaction chamber.

75 (amended). The process according to Claim 67, wherein amplification is carried out (a) in homogenous phase or (b) using a primer attached to a solid phase, the amplified nucleic acid hybridizes with the probe, and the analysis is determined either attached to the solid phase or within the [homogenous phase] free solution.

76 (amended). The process according to Claim 73, wherein the probe is is at least one molecule of fluorescent dye linked to a nucleic acid molecule, the sequence of which is identical or homologous to the amplified nucleic acid to be detected or to the co-amplified nucleic acid standard.

80 (amended). The process according to Claim 67, wherein the probe is an oligo- or polynucleotide having at least two chemical structural elements, wherein (a) each chemical structural element can be detected, upon interacting with electromagnetic waves, by absorption or emission of radiation and (b) one of the structural elements, upon interacting with electromagnetic waves, [that] can [cleave a stable double bond of the oligo- or polynucleotide and, optionally,] link [the stable double bond] to another position on the oligo- or polynucleotide [by absorbing

electromagnetic radiation, excitation-effected emitting of electromagnetic radiation, or a combination thereof].

83 (amended). The process according to Claim 80, wherein the chemical structural [elements are] element that can link to another position on the oligo- or polynucleotide is a photochemical [crosslinkers] crosslinker.

93 (amended). The process of claim 67 wherein the probe is an oligo- or polynucleotide having at least one [non-naturally occurring] chemical structural element (a) having a stable bond that, upon interacting with electromagnetic waves, is capable of cleavage and subsequent linkage with the amplified nucleic acid and (b) can be detected, upon interacting with electromagnetic waves, by absorption or emission of radiation, [that can cleave a stable double bond of the oligo- or polynucleotide and, optionally, link the stable double bond to another position on the oligo- or polynucleotide by absorbing electromagnetic radiation, excitation-effected emitting of electromagnetic radiation, or a combination thereof, and] wherein said structural element is not a purine or pyrimidine substituent of naturally occurring nucleotide components.

94 (amended). The process of claim 93 wherein the chemical structural element having a stable bond is psoralene or a psoralene derivative.

95 (amended). The process of claim 93 wherein the chemical structural element that can be detected luminesces.

Please add the following.

109. The process of claim 67 wherein the probe is an oligo- or polynucleotide having at least one chemical structural element with at least two chemical substituents,

(a) at least one of said chemical substituents having a stable bond that, upon exposure to electromagnetic waves, is capable of cleavage and subsequent linkage with the amplified nucleic acid and (b) at least one of said chemical substituents being detected, upon exposure to electromagnetic waves, by absorption or emission of radiation, wherein said structural element is not a purine or pyrimidine substituent of naturally occurring nucleotide components.

REMARKS

The present claims are 67-109.

Amendments to claims 67, 75, 76, 80, 83, 93, 94, and 95, effected hereby, are submitted in order to more clearly define the present invention. Support for new claim 109 is found in the specification at page 8, last paragraph, and original claim 27.

While new claim 109 is submitted after final rejection, applicants respectfully submit that it is outside of the proscription against additional claims after final rejection. This is because, by the present amendment, applicants submit that the claims are in allowable form.

The present amendment, while submitted after a Notice of Appeal, represents a good-faith effort to place the claims in allowable form by overcoming the remaining rejection of records; as set forth in the Advisory Action mailed October 29, 1996.

As an initial matter, applicants wish to thank the examiner for indicating, in the Advisory Action, those parts of the final rejection that were overcome by applicants response filed September 30, 1996. Applicants respectfully submit that the reasons for rejections that were maintained in accordance with Advisory Action are overcome by the